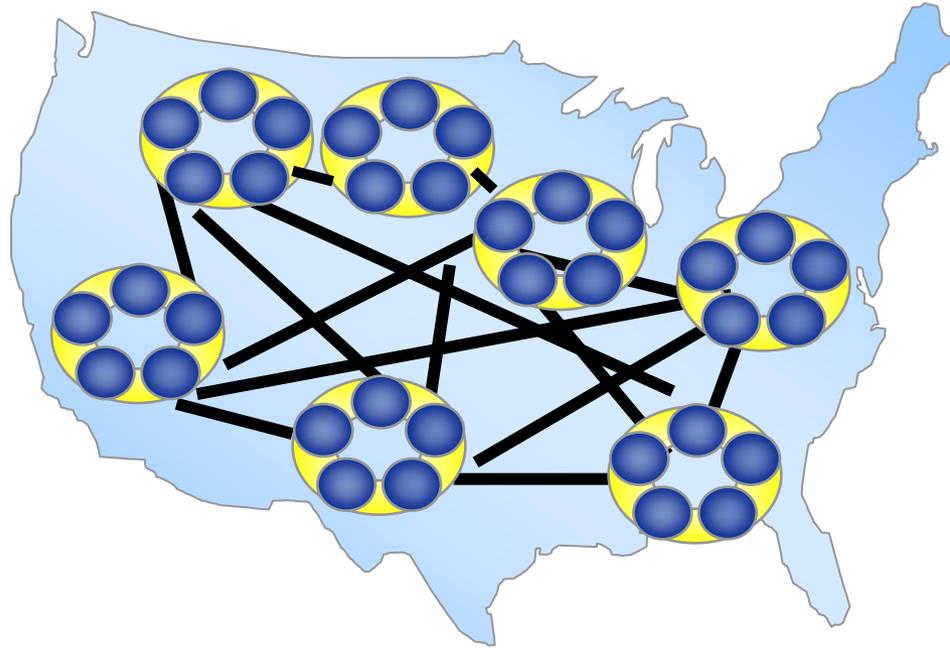


***** Welcome *****



Regional Carbon Sequestration Partnerships

Kick-Off Meeting



Drivers



Presidential Direction

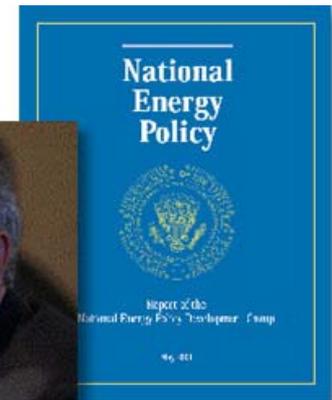
Current Drivers for Carbon Sequestration Program

NCCTI
June 11, 2001

- Third option for global climate change
- Enables continued use of domestic energy resources and infrastructure
- Geologic formations have potential for essentially unlimited storage capacity
- Demonstrated industry interest, participation, and cost-sharing in public/private partnerships
- “We all believe technology offer great promise to significantly reduce emissions -- especially carbon capture, storage and sequestration technologies.”

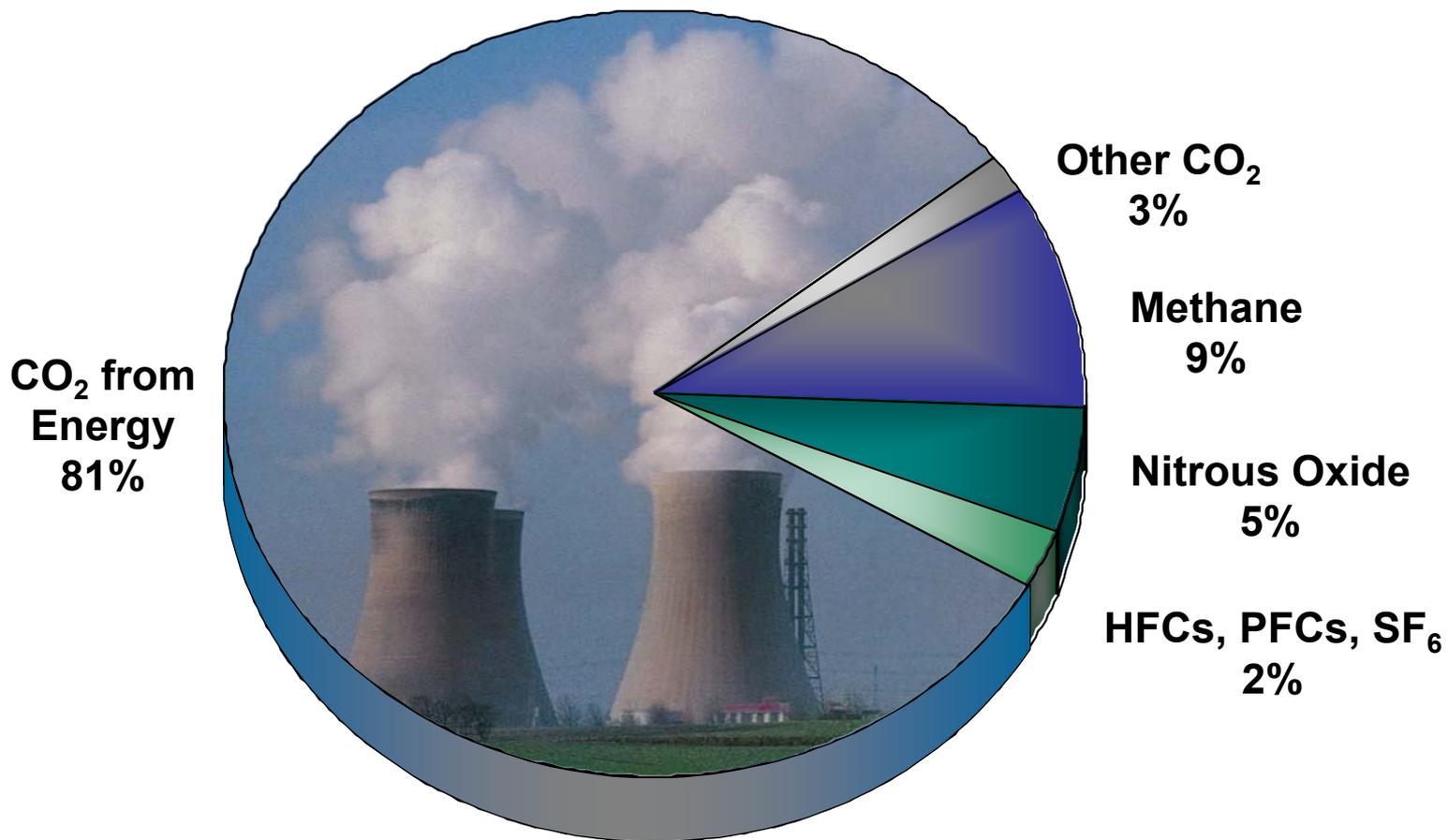
GCCI
February 14, 2002

- Sustain economic growth
- Reduce GHG intensity by 18% in next 10 years
- Reevaluate science & path in 2012



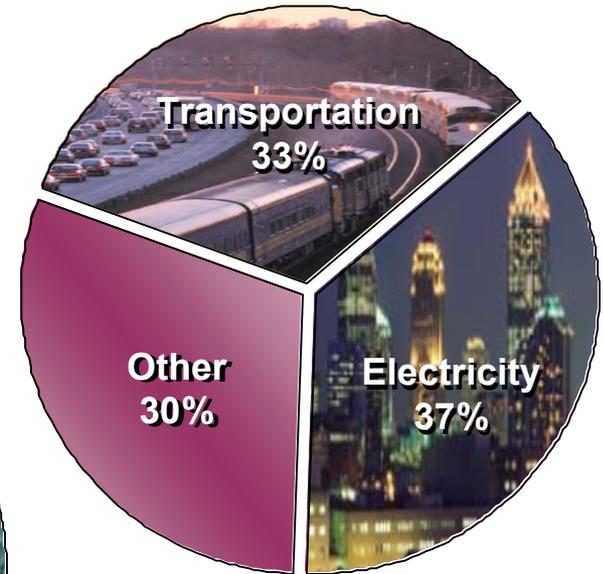
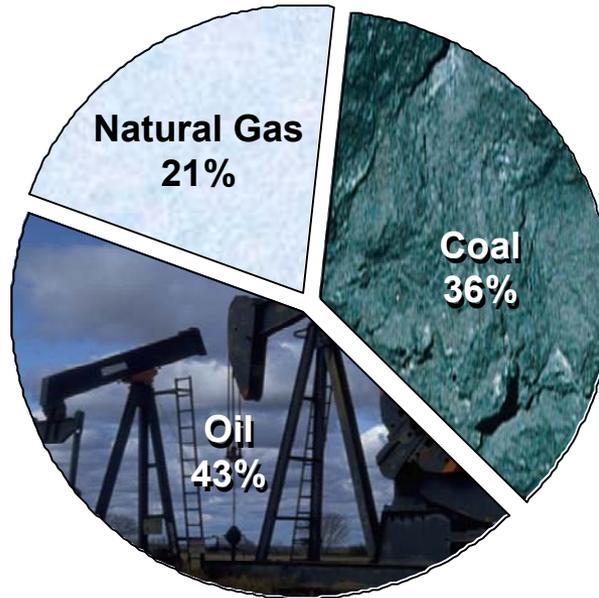
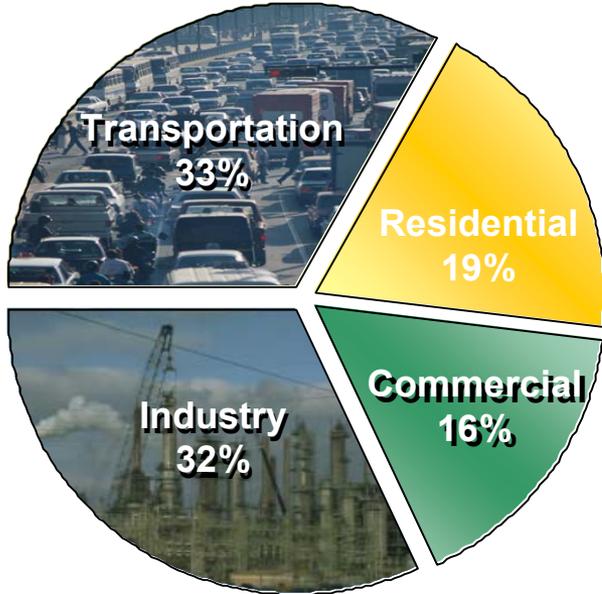
Roadmap Focuses on CO₂ & CH₄

United States Greenhouse Gas Emissions (Equivalent Global Warming Basis)



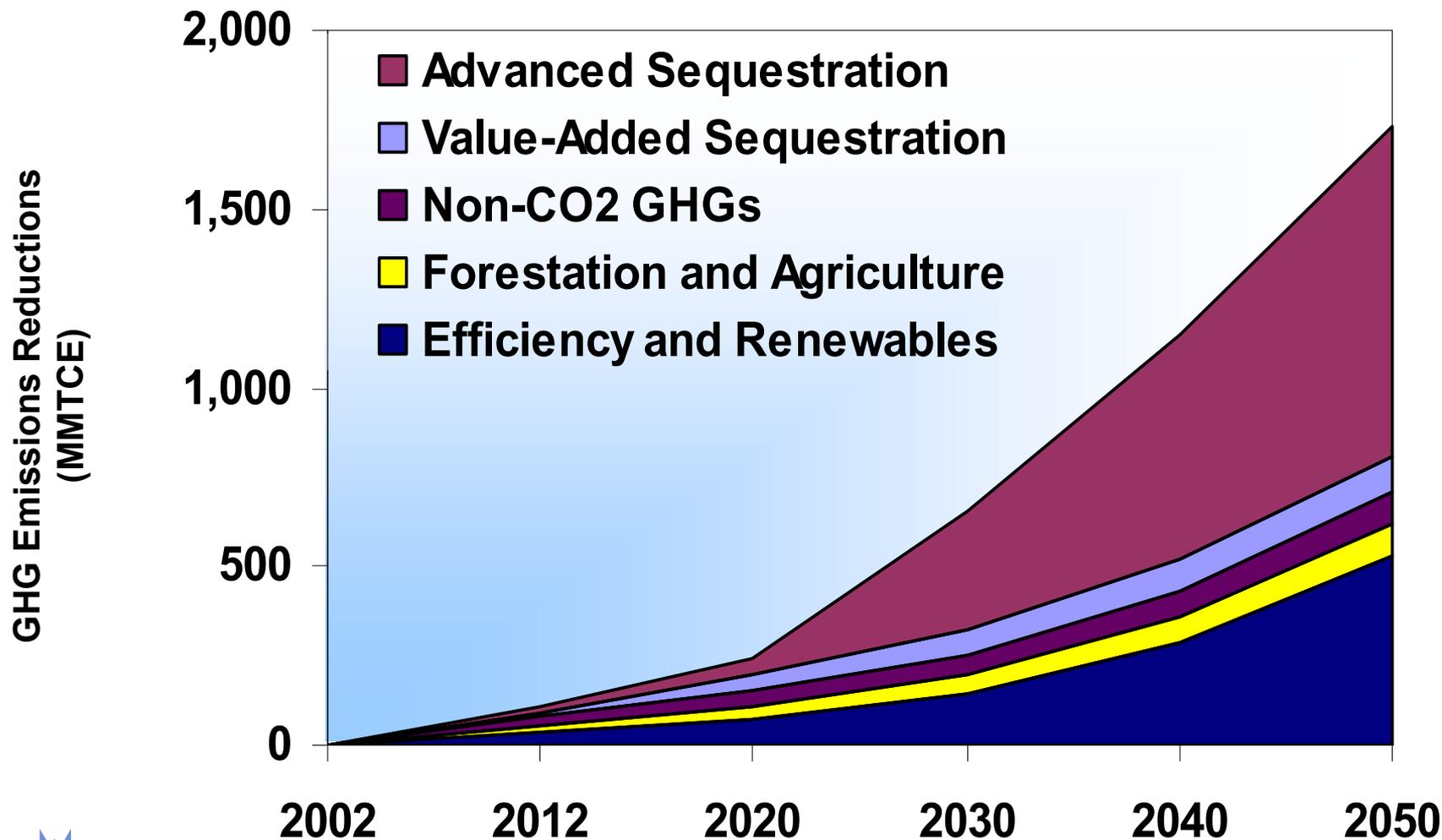
Roadmap Focuses on Coal & Electricity

United States Carbon Dioxide Emissions
(By Source & Sector)



Sequestration = Stabilization

Plausible Scenario to Stop GHG Emissions Growth

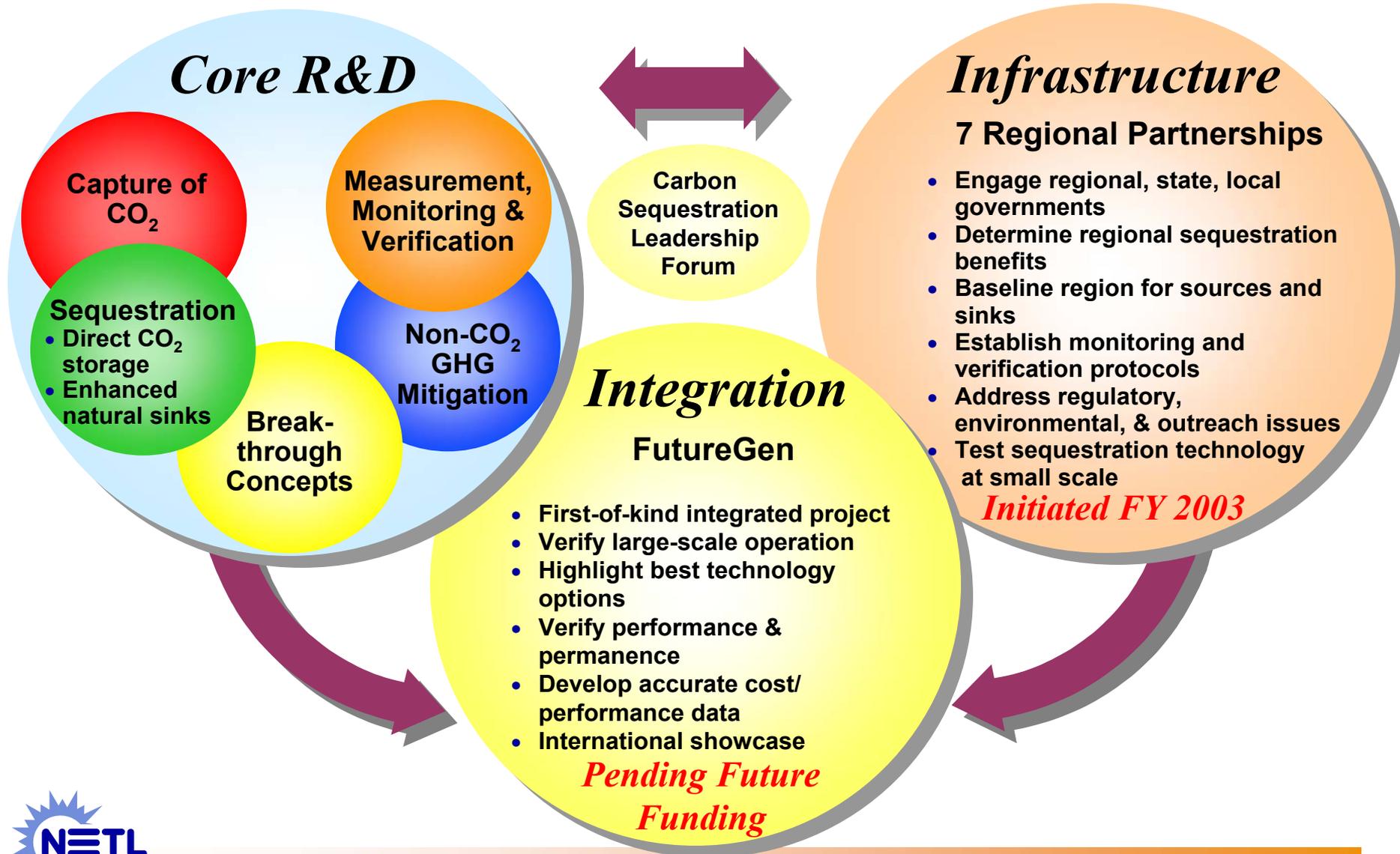


*EIA Annual Energy Outlook 2002; EPA special studies;
DOE/FE/NETL Sequestration Benefits Model*

DOE Carbon Sequestration Program



Carbon Sequestration Program Structure



Sequestration Program Goals

Develop Technology Options for GHG Management That...

- Are safe and environmentally acceptable
- Result in
 - < 10% increase in cost of energy services (< \$10/tonne CO₂ avoided) for capture, transport, & storage
 - With Measurement, Monitoring & Verification protocols for assurance of permanent storage
- Global Climate Change Initiative
 - Contribute to reducing carbon intensity by 18% by 2012
 - Provide portfolio of commercially ready technologies for 2012 assessment

Cost Performance Goals

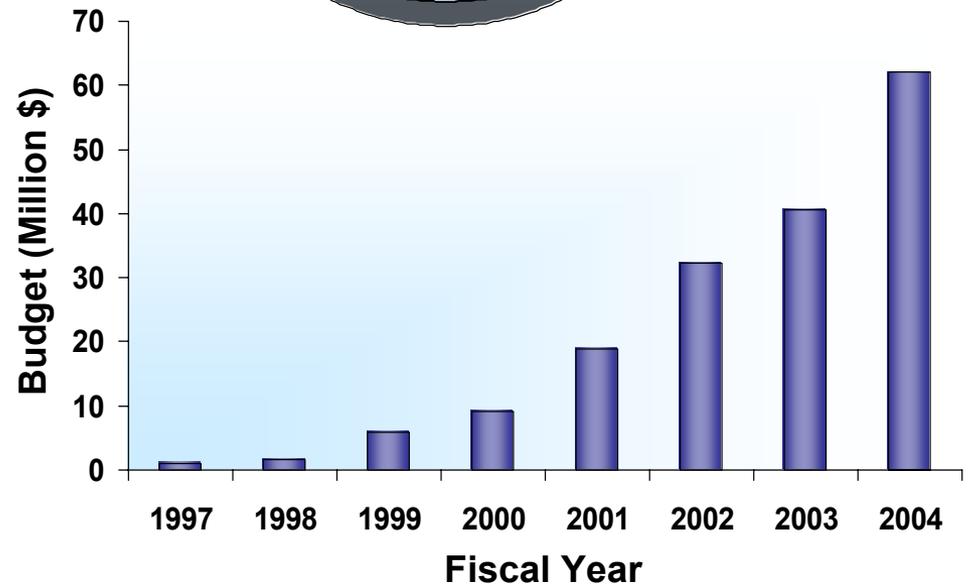
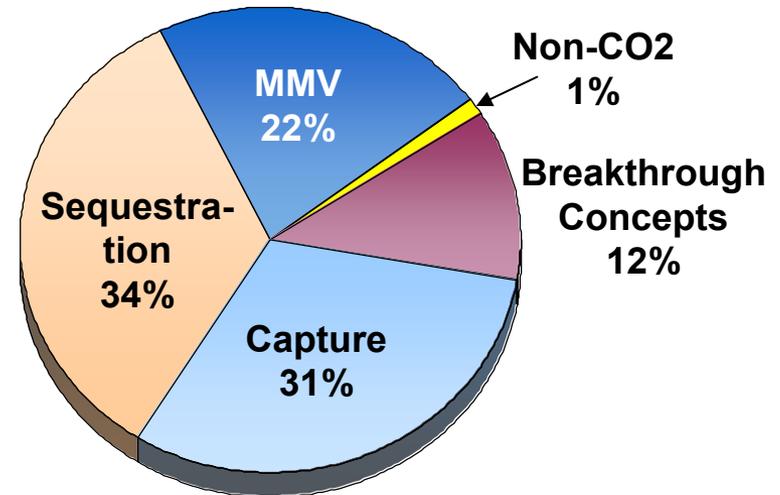
Year	COE Penalty IGCC Plants (% Increase)	COE Penalty PC Plants (% Increase)
2002	30	80
2007	20	45
2012	10	20
2015	<10	10
2018*	0	0

*Cost/Energy offset from sequestering CO₂ with criteria pollutants NO_x, SO_x, H₂S (gasification)



Portfolio Overview

- **Diverse research portfolio**
 - 64 external projects
 - 18 focus area projects
 - BP & IEA consortia
- **Strong industry support**
 - ~ 37% cost share
- **Total portfolio ~ \$140M**

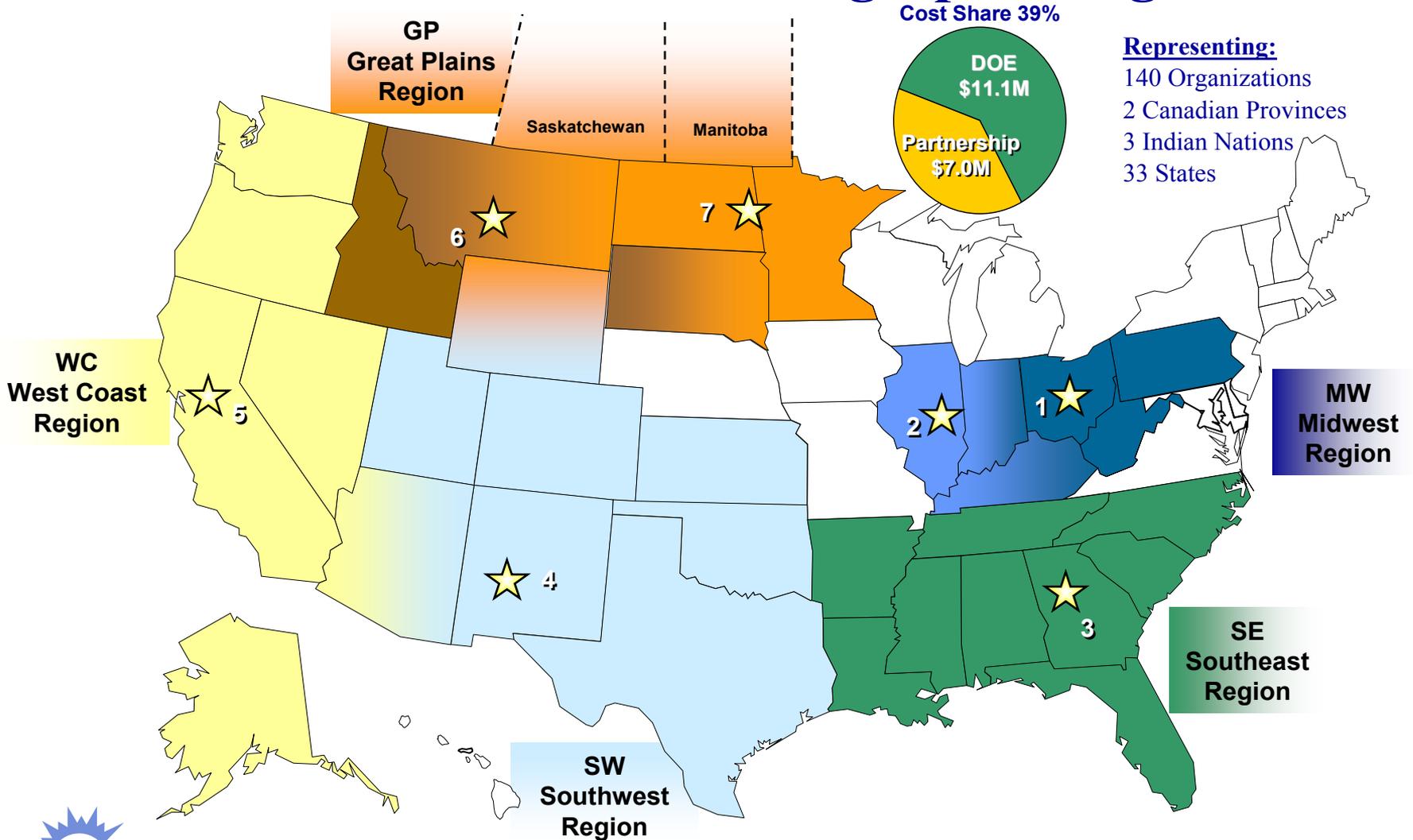


Enter....

Regional Carbon Sequestration Partnerships



Seven Regional Carbon Sequestration Partnerships Established in Five Geographic Regions



Two-Phased Approach

Phase I (Planning)

- 7 Projects
- 18-24 months
- ~\$1.5 million per project
- Overall ~ 40% cost share
- 2 exceed 50% cost share



Phase II (Proof-of-Concepts)

- 7 years
- ~ \$5 million per year/project
- minimum 20% cost share
- 4 to 5 Regions

Regional Carbon Sequestration Partnerships

Developing Infrastructure for Wide Scale Deployment

- **Baseline region for sources and sinks**
- **Address regulatory, environmental, outreach issues**
- **Establish monitoring and verification protocols**
- **Validating sequestration technology & infrastructure**
 - Phase 1 - design
 - Phase 2 - testing
- **Determine benefits of sequestration to region**

These partnerships - 4 to 10 across the country, each made up of private industry, universities, and state and local governments - will become the centerpiece of our sequestration program. They will help us determine the technologies, regulations, and infrastructure that are best suited for specific regions of the country.

Energy Secretary Spencer Abraham
November 21, 2002

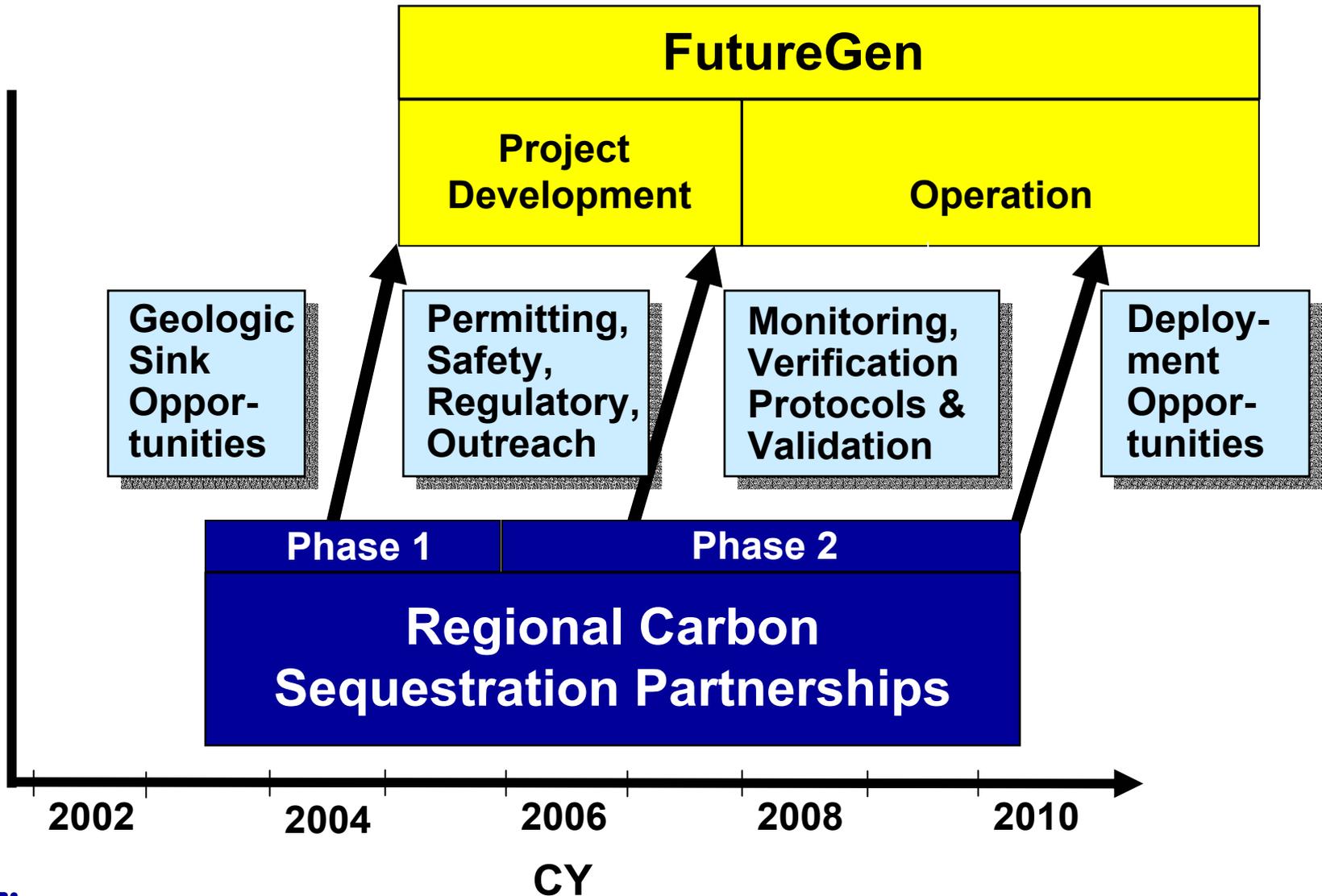


Phase II Approach

- **Not a technology development program!**
- **Establish wide-scale deployment opportunities**
- **Establish and implement Measurement, Monitoring & Verification protocols**
- **Establish and implement accounting & regulatory approaches**
- **Implement outreach mechanisms**
- **Perform proof-of-concept field tests for technology & infrastructure concepts**



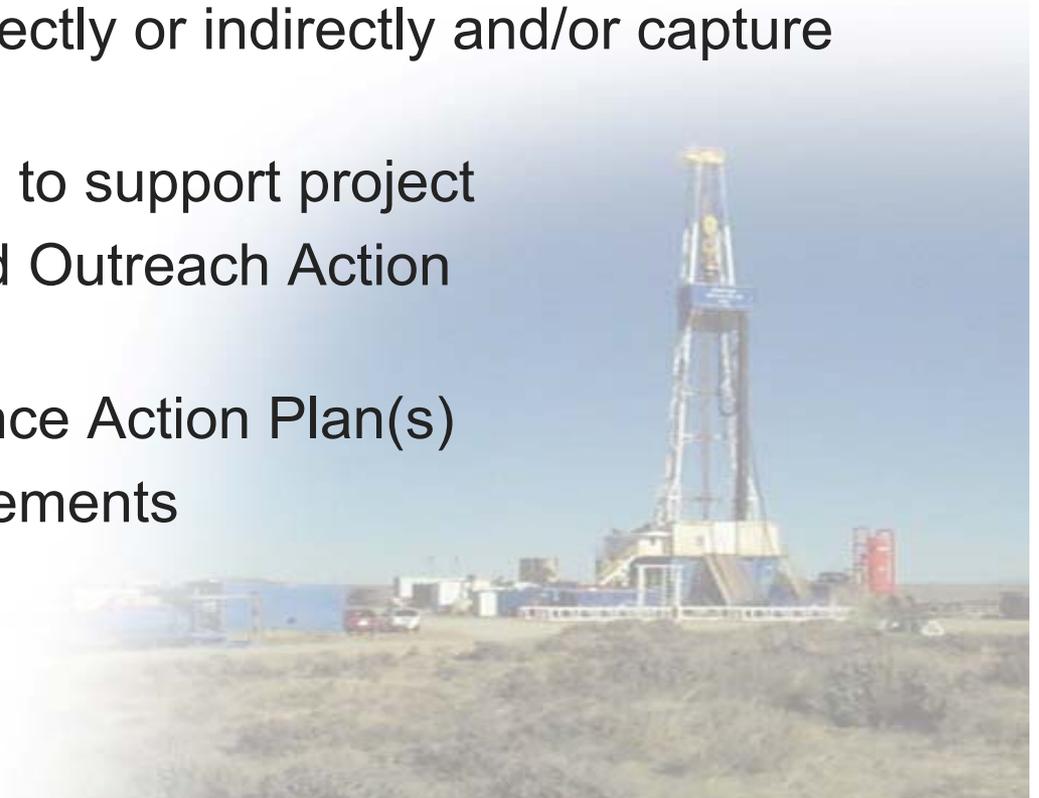
Critical Synergy With Carbon Sequestration Program



Regional Partnerships Outcomes

- **Regional Project Implementation Plan(s)**

- Identify the most promising technologies/ approaches to sequester carbon directly or indirectly and/or capture carbon in the region
- Cost/benefit analysis to support project
- Public Education and Outreach Action Plan(s)
- Regulatory Compliance Action Plan(s)
- MMV Project Requirements



Regional Partnerships Outcomes

- **Action Plan for Regulatory Compliance**
 - Existing or future regulations that will impact sequestration program
 - Identify risk assessment and liability issues
 - Timeline for permitting regional projects
 - MMV and Reporting Requirements
 - Responsibilities



Regional Partnerships Outcomes

- **Action Plan for Public Outreach and Education**
 - Methods to engage the public
 - Tools to educate stakeholders
 - Regulatory requirements for public outreach



Regional Partnerships Coordination

- **Meetings**

- Annual Partnership Review Meetings (November)
- Participate in May 2004 and 2005 National Carbon Sequestration Conferences, Alexandria, VA
- Possible quarterly focus group teleconferences

- **Resources**

- Updates to NETL Webpage with presentations, news releases, partnership contacts, reports, etc.
- Project Managers
- Other partnerships



Leveraging Opportunities Must Be Pursued!

- **DOE is responsible for provided U.S. wide uniformity & consistency where appropriate**
- **DOE plans to leverage existing activities as appropriate**
 - MidCarb & MIT GIS approaches
 - Keystone Center outreach activities
 - IOGCC regulatory guidelines
 - Others are being identified
- **DOE would support these activities in addition to the Partnerships**



NETL Management Team

Scott Klara, Carbon Sequestration Technology Manager

Richard Rogus, Contracting Officer

Kanwal Mahajan, Division Director, Environmental Projects

Regional Partnership Name	Lead Organization	DOE Contract Specialist	DOE Project Manager
Southeast Regional Carbon Sequestration Partnership	Southern States Energy Board	Mary Beth Pearse	Karen Cohen
Midwest Regional Carbon Sequestration Partnership	Battelle Memorial Institute	Donna Jaskolka	Charlie Byrer
An Assessment of Geological Carbon Sequestration Options in the Illinois Basin	Illinois State Geological Survey	Donna Jaskolka	Charlie Byrer
Plains CO2 Reduction Partnership	Energy & Environmental Research Center	Juliana Murray	John Litynski
Northern Rockies and Great Plains Regional Carbon Sequestration Partnership	Montana State University	Angela Delmastro	John Litynski
Southwest Regional Partnership for Carbon Sequestration	New Mexico Institute of Mining and Technology	Mary Beth Pearse	David Hyman
West Coast Regional Carbon Sequestration Partnership	State of California, California Energy Commission	Angela Delmastro	David Hyman



Questions ?

